

Bulletin of the Museum of Comparative Zoology

HARVARD UNIVERSITY

VOL. 131, No. 3

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AMERICAN SPIDERS OF THE GENUS *PHORONCIDIA*  
(ARANEAE: THERIDIIDAE)

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CAMBRIDGE, MASS., U.S.A.

PRINTED FOR THE MUSEUM

APRIL, 1964



No. 3 — *American Spiders of the Genus Phoroncidia*  
(*Araneae: Theridiidae*)

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*Phoroncidia* are mostly small spiders with the abdomen hard and sclerotized but of various shapes. The diversity in shape has caused arachnologists to assign different species to separate genera. Thus the synonymy of generic names (Levi and Levi, 1962) is long. Some species are similar to those placed in *Dipocna* (Hickman, 1951). However *Dipocna* females always have four seminal receptacles, while *Phoroncidia* have two. In *Dipocna* males, if the palpal embolus is long it curls counter-clockwise in the left palpus; in *Phoroncidia*, the direction is the reverse. It is believed that the similarities, heavy sclerotization of the abdomen (only some species of *Dipocna*), projecting eye region of the carapace, and the relatively long fourth leg, have independently evolved. Nothing is known of the natural history of *Phoroncidia* species.

The Central and South American *P. tricuspidata* group, having three spines on the abdomen (Figs. 50, 56), is closest to its African relatives, some of which have five spines on the abdomen: two anteriorly, as in the American species, and three posteriorly. The commonest species is the North American *P. americana*, closely allied in shape and appearance to the European *P. paradoxa* (Lucas), and the Japanese *P. pilula* (Karsch); most other species are very rare. Almost half the specimens available were collected during the nineteenth century and these old specimens, collected by entomologists, are often in poor condition, having been speared on insect pins. The scarcity of specimens, and the abundance of species, make it difficult to match sexes. The paper thus reports only our very incomplete knowledge of the American species. Despite this, I have resisted the temptation of quoting unsupported literature records. I have not been able to examine the Mello-Leitão collection to verify his many records of *P. tricuspidata*. I suspect many are misidentified.

This paper, along with my others on American theridiid spiders, would not have been possible without the help of numerous colleagues who made rare specimens available. I extend sincerest thanks to Prof. M. Vachon of the Muséum National d' Histoire Naturelle, Paris (MNHN), Dr. A. Collart and Mr. J.

Kekenbosch of the Institut Royal des Sciences Naturelles de Belgique (ISNB), Dr. L. Brundin of the Natural History Museum Stockholm (RMS), Prof. G. C. Varley and Mr. E. Taylor of the Hope Department of Entomology, Oxford University, Dr. G. Owen Evans, Mr. K. Hyatt and Mr. D. Clark of the British Museum (Natural History) (BMNH); Dr. W. J. Gertsch of the American Museum of Natural History (AMNH), Dr. O. Kraus of the Senckenberg Museum (SMF), and Mr. W. Starega of the Polish Academy of Sciences, Warsaw. Dr. P. E. Vanzolini and his colleagues of the Departamento de Zoologia, São Paulo, provided locality information. Fr. Chrysanthus checked the latinization of specific names. The examination of types in European museums was made possible by a National Science Foundation Grant (G-4317), and the completion of the revision by a grant from the National Institutes of Health (AI-01944).

#### PHORONCIDIA Westwood

*Phoroncidia* Westwood, 1835, Zool. Jour., 5: 452. Type species by monotypy: *P. aculeata* Westwood, 1835, *ibid.*, 5: 453, tab. 22, fig. 9, ♀, ♂ from Malaya.

*Note.* It is not known whether Westwood's specimens still exist. Only a few specimens determined by Berland in the Paris museum were examined. We recently published the synonymies (Levi and Levi, 1962).

*Diagnosis.* Theridiid spiders with colulus replaced by two setae, usually hidden underneath a sclerotized ring surrounding spinnerets. Carapace with eye region projecting above clypeus. Small chelicerae. Legs very short; fourth leg usually longer than first. Abdomen of various shapes, heavily sclerotized, often leathery, folded or with strong spines, humps, tubercles or extensions.

Epigynum a heavily sclerotized plate with openings, often indistinct, in the center or on the posterior border. Juvenile specimens may also have the epigastric area sclerotized. Only examination for the presence of seminal receptacles will determine whether the specimen is mature. The palpus usually has a paracymbial hook on or near the edge of the cymbium and the median apophysis probably does not touch the hook.

*Distribution.* Species are found in all parts of the world except northern Europe and western North America.

*Misplaced species.* *Hcribertus flavomaculatus* Keyserling, 1891, Die Spinnen Amerikas, Theridiidae, 2(1): 223. *Ulcasis*

*flavomaculata*. — Petrunkevitch, 1911, Bull. Amer. Mus. Nat. Hist., 29: 214 = *Dipocna flavomaculata* (Keyserling) [not "*Umfila flavomaculata*, — Petrunkevitch," Levi, 1963, Bull. Mus. Comp. Zool., 129: 151, a misprint].

*Tricantha albopunctata* Taczanowski, 1879, Horae Soc. Ent. Rossicae, 15: 123, pl. 2, fig. 36 = *Araneus albopunctatus* (Taczanowski), ARGIOPIDAE.

## KEY TO AMERICAN PHORONCIDIA

- |      |   |                      |
|------|---|----------------------|
| 1a.  | Abdomen with spines, humps, tubercles or projections  | 5                    |
| 1b.  | Abdomen without spines, humps, tubercles or projections   | 2                    |
| 2a.  | Dorsum of abdomen with many trapezoidal plates (Fig. 11); Amazon  | <i>studo</i>         |
| 2b.  | Dorsum of abdomen covered by one single plate   | 3                    |
| 3a.  | Trapezoidal impressions on dorsal plate (Fig. 17); Lower Amazon   | <i>longiceps</i>     |
| 3b.  | Dorsal plate without trapezoidal impressions  | 4                    |
| 4a.  | Lateral eyes on tubercles (Fig. 2); Peru  | <i>moyobamba</i>     |
| 4b.  | Lateral eyes not on tubercles (Fig. 23); Est. Rio de Janeiro  | <i>rubromaculata</i> |
| 5a.  | Abdomen subcircular in outline in dorsal view (Fig. 20)   | 6                    |
| 5b.  | Abdomen trapezoidal, subtriangular or squarish with posterior projections   | 7                    |
| 6a.  | Abdomen with only a median dorsal hump (Fig. 20); Chile   | <i>scutula</i>       |
| 6b.  | Abdomen with a median dorsal hump and paired humps posteriorly (Levi, 1955, figs. 7, 8); eastern Canada, eastern United States, Cuba, Jamaica | <i>americana</i>     |
| 7a.  | Abdomen widest anteriorly and with a median dorsal posterior spine (Figs. 29, 45, 56)   | 11                   |
| 7b.  | Abdomen as wide anteriorly as posteriorly, or wider posteriorly than anteriorly, usually without median posterior spine                       | 8                    |
| 8a.  | Abdomen trapezoidal in dorsal view with five dorsal spines (Figs. 36, 37); Minas Gerais   | <i>tina</i>          |
| 8b.  | Abdomen otherwise   | 9                    |
| 9a.  | Abdomen with sides tuberculate and wrinkled (Figs. 32, 34); Chile   | <i>margamarga</i>    |
| 9b.  | Abdomen with at most median dorsal tubercles; with sclerotized plates   | 10                   |
| 10a. | Abdomen with longitudinal row of dorsal tubercles (Figs. 40, 41); Chile   | <i>coquimbo</i>      |
| 10b. | Abdomen with sclerotized spots but without tubercles (Figs. 25, 26); Chile  | <i>nicoleti</i>      |
| 11a. | Median posterior dorsal spine longer than anterior spines (Fig. 45)   | 12                   |
| 11b. | Three spines subequal in length   | 13                   |

- 12a. Innumerable dorsal circular plates of abdomen almost touching (Fig. 29); Venezuela ..... *ravot*
- 12b. Fourteen dorsal circular plates, far apart (Fig. 45); Peru ..... *scutellata*
- 13a. Epigynum with a distinct median opening (Fig. 78); Est. São Paulo to Est. Rio Grande do Sul ..... *reimoseri*
- 13b. Epigynum otherwise ..... 14
- 14a. Epigynum with a V-shaped depression anterior to and between two dark spots containing openings (Fig. 73); Colombia ..... *saboya*
- 14b. Epigynum otherwise ..... 15
- 15a. Epigynum with paired openings near posterior margin (Fig. 58); Peru ..... *flavolimбата*
- 15b. Epigynum otherwise ..... 16
- 16a. Openings of epigynum indistinct lateral slits (Fig. 47); Est. Guanabara, Rio de Janeiro ..... *tricuspidata*
- 16b. Epigynum otherwise ..... 17
- 17a. Epigynum with a pair of distinct openings in a flat plate, anterior to a transverse keel (Fig. 63); southern Mexico, Central America ..... *triumfo*
- 17b. Epigynum otherwise ..... 18
- 18a. Epigynum with a median depression containing openings ..... 19
- 18b. Epigynum without median depression, openings a pair of slits (Fig. 68); Minas Gerais ..... *biocellata*
- 19a. Spines relatively short (Fig. 56); distinct pair of openings in depression of epigynum (Fig. 53); Paraguay ..... *cribrata*
- 19b. Spines relatively long (Fig. 86); openings in epigynum depression indistinct (Fig. 83); Venezuela ..... *gira*

### PHORONCIDIA MOYOBAMBA sp. n.

#### Figures 1-5

*Wibrada longiceps*,—Archer, 1950, Paper Alabama Mus. Nat. Hist., no. 30: 27, pl. 4, fig. 4, ♂. Not *Wibrada longiceps* Keyserling.

*Type*. Male holotype from Moyobamba, San Martín, Peru, 20 Dec. 1946 (J. C. Pallister), in the American Museum of Natural History. The name is a noun in apposition after the type locality.

*Description*. Carapace, sternum dark brown; legs lighter brown. Abdomen, dorsum shiny brown; venter brown with a white spot on each side of pedicel, a white mark behind epigastric groove, brown ring around spinnerets, and a small white mark on each side of ring around spinnerets. Sides and elypeus of carapace punctate, dorsum almost smooth. Median eyes on stalk; lateral eyes on tubercles (Fig. 2). Anterior median eyes larger than others, slightly less than a diameter apart. Posterior median eyes one and one-half diameters apart. Sternum

punctate. Dorsum of abdomen heavily sclerotized, domed, with paired slight depressions; venter folded with many sclerites (Figs. 3-5). Total length 1.6 mm. Carapace 0.8 mm long, 0.6 mm wide. First patella and tibia, 0.4 mm; second, 0.3 mm; third, 0.3 mm. Fourth femur, 0.4 mm; patella and tibia, 0.5 mm; metatarsus, 0.2 mm; tarsus, 0.2 mm.

*Diagnosis.* The shape of the carapace (Fig. 2) and color of the abdomen separate *P. moyobamba* from *P. rubromaculata*. The palpus (Fig. 1) has a shorter embolus than *P. longiceps*. The palpus resembles that of some species of *Dipoena*, but only determination of the number of female seminal receptacles will make the generic affiliation certain.

#### PHORONCIDIA STUDO sp. n.

##### Figures 6-11

*Type.* Female holotype from São Paulo de Olivença, Amazonas, Brazil (M. de Mathan), in the Muséum National d'Histoire Naturelle, Paris (No. 8329). The specific name is an arbitrary combination of letters.

*Description.* Carapace dark brown with posterior central portion lighter brown; sternum, legs dark brown. Abdomen dark brown, sclerites darker, a white pigment ring around lateral edge on venter (Figs. 9, 10), and some white pigment spots behind epigynum. Carapace tuberculate on sides. Median eyes on projection and each two lateral eyes on a tubercle (Fig. 6). Anterior median eyes slightly larger than others, their diameter apart. Posterior median eyes their diameter apart. Dorsum of abdomen with trapezoidal sclerites, venter also with sclerites (Figs. 9-11). Most sclerites with darker spot in middle and double bordered. Total length 2.1 mm. Carapace 0.9 mm long, 0.7 mm wide. First patella and tibia 0.5 mm; second 0.4 mm; third, 0.4 mm. Fourth femur, 0.6 mm; patella and tibia, 0.6 mm; metatarsus, 0.3 mm; tarsus, 0.3 mm.

*Diagnosis.* The unusual shape and arrangement of the sclerotized plates readily separate this species from all other *Phoroncidia*. I suspect that this is the female of *Phoroncidia longiceps*, known only from a male. A juvenile male collected in Peru has its abdomen like that of the female but the median eye region projects farther anteriorly.

*Records.* Peru. Huánuco: Divisoria, Sept., Oct. 1946, 1 juv. ♂ (F. Woytkowski, AMNH). Brazil. Amazonas. São Paulo de Olivença, ♀ paratype (M. de Mathan, MNHN).

## PHORONCIDIA LONGICEPS (Keyserling), n. comb.

Figures 12-17

*Wibrada longiceps* Keyserling, 1886, Die Spinnen Amerikas, Theridiidae, 2(2): 22, pl. 11, fig. 145, ♂. Male holotype from "Peru," in the Muséum National d'Histoire Naturelle, Paris, examined.

*Wibrada longiceps*, — Simon, 1894, Histoire Naturelle des Araignées, 1: 560, fig. 570.

*Note.* Keyserling's locality is in error since the specimen is marked as coming from Le Para [Belém, Brazil] and was collected by M. de Mathan. Simon (1894) indicated that the specimen came from the Amazon region of Brazil. Keyserling apparently misread Peru for Para on the label.

*Description.* Carapace dark brown, the portion covered by abdomen lighter. Sternum, legs dark brown. Dorsum of abdomen dark brown; venter with sclerotized areas dark brown but a ring of white pigment between dorsal and ventral scuta (Figs. 15, 16). Carapace tuberculate on sides; sternum tuberculate. Anterior median eyes slightly larger than others, their diameter apart. Posterior median eyes their diameter apart. Median eyes projecting (Figs. 12, 13), and laterals on a hump. Chelicerae with small fangs. Abdomen with a dark dorsal shield that has impressions of trapezoids; in the center of each is a dark spot (Figs. 15, 17). Total length 1.6 mm. Carapace 0.9 mm long, 0.7 mm wide. First patella and tibia, 0.4 mm; second, 0.3 mm; third, 0.3 mm. Fourth femur, 0.5 mm; patella and tibia, 0.5 mm; metatarsus, 0.2 mm; tarsus, 0.2 mm.

Judging by the trapezoid dorsal impressions and the trapezoid plates on dorsum of the abdomen, *P. studo* may be the female of *P. longiceps*.

## PHORONCIDIA RUBROMACULATA (Keyserling), n. comb.

Figures 21-23

*Heribertus rubromaculatus* Keyserling, 1886, Die Spinnen Amerikas, Theridiidae, 2(2): 28, pl. 11, fig. 148, ♂. Fragments of male type from [Nova Friburgo, Est. Rio de Janeiro] Brazil, in the Muséum National d'Histoire Naturelle, Paris, examined.

*Ulesanis rubromaculata*, — Simon, 1894, Histoire naturelle des Araignées, 1: 554.

*Note.* Keyserling described the species from "Brazil." The label in the type vial indicates that the specimen came from "N. Friburgo." Both palpi and most legs of the holotype are missing.



*Description.* Carapace dark brown. Sternum, legs brown. Sclerotized part of abdomen brown, dorsum with a median white mark, which is longer than wide and was probably reddish in the live spider (Fig. 23). Eyes subequal in size. Anterior median eyes one and one-half diameters apart, two and one-half diameters from laterals. Posterior median eyes one and one-half diameters apart, one and three-quarters diameters from laterals. Eye region of carapace high and projecting anteriorly (Fig. 21). Abdomen with heavily sclerotized dorsal shield having some darker marks. Venter with numerous sclerotized areas (Figs. 21, 22). Total length 2.1 mm. Carapace 1.0 mm long, 0.8 mm wide. First femur, 0.7 mm. Second patella and tibia, 0.5 mm.

PHORONCIDIA SCUTULA (Nicolet), n. comb.

Figures 18-20

- Gasteracantha scutula* Nicolet, 1849, in Gay, *Historia de Chile*, Zool., 10(3): 478, pl. 5, fig. 6, ♀. Female type from Chile lost.
- Gasteracantha caduceator* Nicolet, 1849, *op. cit.*, p. 479. Female type from Chile, lost.
- Gasteracantha violaceata* Nicolet, 1849, *op. cit.*, p. 479. Female type from Chile, lost.
- Gasteracantha porcellanae* Nicolet, 1849, *op. cit.*, p. 480. Female type from Chile, lost.
- Gasteracantha maculata* Nicolet, 1849, *op. cit.*, p. 480. Female type from Chile, lost.
- Gasteracantha venusta* Nicolet, 1849, *op. cit.*, p. 480. Female type from Chile, lost.
- Gasteracantha ventrosa* Nicolet, 1849, *op. cit.*, p. 481. Female type from Chile, lost.
- Gasteracantha scitula* Nicolet, 1849, *op. cit.*, p. 481. Female type from Chile, lost.
- Gasteracantha inflata* Nicolet, 1849, *op. cit.*, p. 482. Female type from Chile, lost.
- Gasteracantha columnata* Nicolet, 1849, *op. cit.*, p. 482. Female type from Chile, lost.
- Gasteracantha punctata* Nicolet, 1849, *op. cit.*, p. 483. Female type from Chile, lost.
- Gasteracantha minuta* Nicolet, 1849, *op. cit.*, p. 483. Female type from Chile, lost.
- Ulesanis scutula*, — Keyserling, 1886, *Die Spinnen Amerikas*, Theridiidae. 2(2): 18, pl. 11, fig. 14, ♀. — Tullgren, 1902, *Bih. Svenska Vet. Akad. Handl.*, 28(4): 16, fig. 5, ♂. Bonnet, 1959, *Bibliographia Araneorum*, 2:4753.

*Note.* Keyserling first synonymized Nicolet's *Gasteracantha* species. According to Keyserling the abdomen of the female is like that of the male.

*Description.* Male. Carapace dark grayish brown. Distal end of labium and maxillae white. Sternum dark gray-brown. Legs dark brown except coxae and tarsi white. Abdomen black with white spots on dorsum or sides, no two specimens alike. Sclerotized parts very dark brown. Carapace highest in thoracic region (Fig. 19). Anterior median eyes slightly larger than others, their diameter apart and one diameter from laterals. Posterior median eyes two-thirds diameter apart, one and one-quarter diameters from laterals. Abdomen dorsum covered by a sclerotized, punctate scutum, with a dorsal hump (Figs. 19, 20). Sclerotized plates and spots on sides; epigastric area heavily sclerotized and sclerotized ring around spinnerets. Total length 1.8 mm. Carapace 0.9 mm long, 0.8 mm wide, 0.4 mm high. First patella and tibia, 0.6 mm; second, 0.5 mm; third, 0.4 mm. Fourth femur, 0.6 mm; patella and tibia, 0.7 mm; metatarsus, 0.3 mm; tarsus, 0.3 mm.

Older males have the abdomen more wrinkled ventrally than younger ones.

*Records.* *Bolivia.* *Bení:* Rurrenabaque, 10 Nov. 1956, ♂ (L. Peña, ISNB). *Chile.* *Valdivia:* Eneo, 3 March 1955, ♂ (L. Peña, ISNB). *Llanquihue:* Carelmapu, 21-28 Feb. 1961, ♂ (L. Peña, ISNB). *Aysen:* Upper part of Aysen Valley, ♂ (P. Dusen, RMS).

#### PHORONCIDIA AMERICANA (Emerton)

##### Map

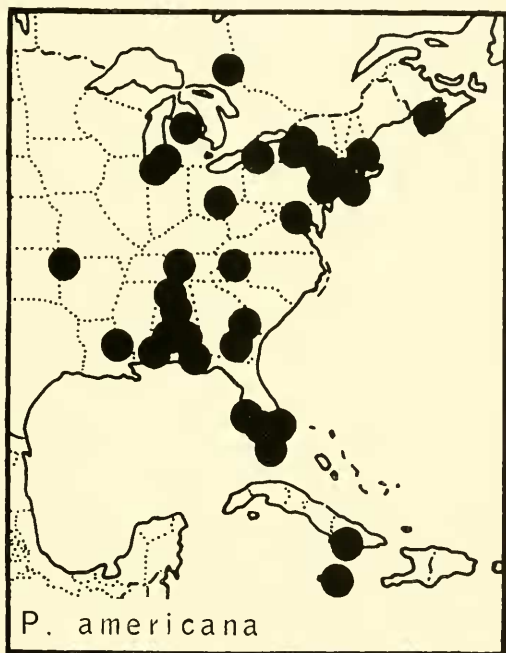
*Ulesanis americana* Emerton, 1882, Trans. Connecticut Acad. Sci., 6: 28, pl. 6, fig. 1, ♀, ♂. Female, male syntypes from New Haven, Connecticut, in the Museum of Comparative Zoology, examined.—Bonnet, 1959, *Bibliographia Araneorum*, 2:4751.

*Oronota americana*,—Levi, 1955, *Ann. Ent. Soc. Amer.*, 48: 334, figs. 1-8, ♀, ♂.

*Distribution.* Eastern Canada, eastern United States, Cuba, Jamaica. (Map.)

*Additional Records.* *Canada.* *Nova Scotia:* Coldbrook, 31 Aug. 1955 (C. Dondale). *Ontario.* Marten River, 36 mi. N of North Bay, 31 Aug. 1955 (H., L. Levi). *United States.* *Michigan.* Crawford Co.: Hartwick Pines, Sept. 1955 (H., L. Levi).

*Arkansas*. Washington Co.: Cove Creek Valley, 15 mi. W of Prairie Grove; Boston Mts., 300 m (O. Hite). *Jamaica*: Hardwar Gap, 5 Dec. 1954, ♂ (A. M. Nadler, AMNH).



Distribution of *Phoroncidia americana*.

PHORONCIDIA NICOLETI sp. n.

Figures 24-26

*Type*. Male holotype from Sierra de Chillán, Chillán, Chile, in the Muséum National d'Histoire Naturelle, Paris (no. 17699). The species is named after the early French arachnologist H. Nicolet.

*Description*. Carapace brown with indistinct gray marks radiating to sides. Sternum brown. Legs brown with distal segments lighter. Abdomen dark gray with a narrow dorsal light crescent, underlain by white pigment, with its arms pointing posteriorly (Fig. 26). Ring around spinnerets darker gray. Carapace only slightly overhanging eye region. Eyes subequal in size. Anterior eyes their diameter apart. Posterior medians

one and one-quarter diameters apart, two-thirds diameter from laterals. Abdomen with two posterior pointing projections (Figs. 25, 26), corniculate, except for smooth area of white crescent. Total length 1.6 mm. Carapace 0.7 mm long, 0.7 mm wide. First femur, 0.7 mm; patella and tibia, 0.6 mm; metatarsus, 0.4 mm; tarsus, 0.3 mm. Second patella and tibia, 0.5 mm; third, 0.4 mm; fourth, 0.6 mm.

*Diagnosis.* The two projections of the abdomen (Figs. 25, 26) distinguish this species from *P. scutula*, and the lack of dorsal tubercles from *P. coquimo*.

PHORONCIDIA RAVOT sp. n.

Figures 27-29

*Type.* Male holotype from Tovar, Aragua, Venezuela, 1888 (E. Simon), in the Muséum National d'Histoire Naturelle, Paris (no. 10171). The specific name is a noun in apposition, an anagram of the type locality.

*Description.* Carapace dark brown, sternum brown, legs yellow-brown. Abdomen dark brown except for two pairs of white spots on dorsum, a large white patch on each side above spinnerets, and a white patch on each side of the venter anterior to pedicel above carapace. Carapace with median eyes on projection and laterals on a slight hump. Eyes subequal in size. Anterior median eyes one diameter apart. Posterior median eyes one and one-half diameters apart, about three diameters from posterior laterals. Abdomen subtriangular with a median dorsal posterior spine (Figs. 27, 29). Dorsum covered with innumerable small sclerotized discs; some elongate plates on ventral part of sides and venter with some round plates and spots between epigastric groove and sclerotized ring surrounding spinnerets. Total length 2.0 mm. Carapace 1.0 mm long, 0.8 mm wide. First patella and tibia, 0.6 mm; second, 0.4 mm; third, 0.4 mm. Fourth femur, 0.6 mm; patella and tibia, 0.6 mm; metatarsus, 0.3 mm; tarsus, 0.3 mm.

*Diagnosis.* The well-sclerotized palpus has the embolus almost straight, unlike any other *Phoroncidia* examined (Fig. 28). It is possible that this is the male of *P. gira* collected at the same locality, and having a triangular abdomen.

*Records.* *Venezuela. Aragua:* Tovar, 2 juv. paratypes, 1888 (E. Simon, MNHN).

## PHORONCIDIA MARGAMARGA sp. n.

Figures 30-34

*Type.* Female holotype from Marga Marga, Valparaiso Prov., Chile, 11-13 Sept. 1954 (L. Peña), in the Institut Royal des Sciences Naturelles de Belgique, Brussels. The specific name is a noun in apposition after the type locality.

*Description.* Carapace dark brown, eye region yellowish white. Chelicerae, sternum yellow-white. Legs yellow-white, except fourth femur with a distal brown ring; all tibiae with a distal dark brown ring. Abdomen with scattered gray and black pigment, sclerotized spots over muscle attachment black, and two longitudinal parallel lines of black pigment spots (Fig. 34). Venter of abdomen with scattered gray pigment and three black spots on each side of sclerotized ring around spinnerets. Eyes subequal in size, anterior medians slightly less than their diameter apart, and slightly less than their diameter from laterals. Posterior median eyes one-third diameter apart, one and one-half diameters from laterals. Abdomen wrinkled and with humps (Figs. 32-34). Total length of female 2.7 mm. Carapace 0.6 mm long, 0.8 mm wide. First patella and tibia, 0.7 mm; second, 0.6 mm; third, 0.6 mm. Fourth femur, 0.9 mm; patella and tibia, 0.9 mm; metatarsus, 0.5 mm; tarsus, 0.4 mm.

*Diagnosis.* The abdomen shape (Figs. 32-34) distinguishes this species from other *Phoroncidia*. The epigynum shows no noticeable structure. The lateral dark spots are muscle attachments. The internal ducts are so transparent that they were invisible on the single specimen examined. The indistinct opening, however, seems to be in the center.

## PHORONCIDIA COQUIMBO sp. n.

Figures 38-41

*Type.* Female holotype from Hacienda Illapel, 600-1300 m elev., Coquimbo, Chile, 24-31 Oct. 1954 (L. Peña), in the Institut Royal des Sciences Naturelles de Belgique, Brussels. The specific name is a noun in apposition after the province of the type locality.

*Description.* Carapace dark brown, lighter in middle and behind. Sternum brown with a narrow darker border. Legs yellow-brown, proximal end and distal half of femora, patellae and distal half of tibiae brown. Abdomen reddish brown, black on each side, some black pigment across middle and on lateral

extensions; white pigment spots around each nipple and on dorsum of each lateral extension. Venter reddish brown, darker around spinnerets; a white spot on each side of the epigastric area (Figs. 40, 41). Eyes subequal in size. Anterior median eyes two-thirds diameter apart, three-quarters diameter from laterals. Posterior median eyes three-quarters diameter apart, one and one-quarter diameters from laterals. Abdomen wider than long with four dorsal nipples in a longitudinal row and two lateral posterior extensions (Fig. 41), many small sclerotized discs and numerous small sclerotized spots all over abdomen. Sclerotized ring around spinnerets. Total length 3.0 mm. Carapace 0.8 mm long, 0.9 mm wide. First patella and tibia, 0.6 mm; second, 0.6 mm; third, 0.5 mm. Fourth femur, 0.8 mm; patella and tibia, 0.8 mm; metatarsus, 0.4 mm; tarsus, 0.3 mm.

*Diagnosis.* The sclerotization of the abdomen is lighter than in other species of *Phoroncidia*. The shape of the abdomen (Figs. 40, 41) is distinct. The epigynum has an indistinct median opening (Fig. 39); the two seminal receptacles are spherical (Fig. 38). The course of the ducts remains uncertain.

PHORONCIDIA TINA sp. n.

Figures 35-37

*Type.* Male holotype from Diamantina, Minas Gerais, Brazil, 1902 (E. Gounelle) in the Muséum National d'Histoire Naturelle, Paris (no. 22462). The specific name is an arbitrary combination of letters.

*Description.* Carapace yellow with a median thin longitudinal black line; area between eyes black. Sternum yellow. Legs yellow; fourth darkest, brownish. Abdomen dorsum silver with sclerotized discs yellow, giving it a golden appearance. Sides of abdomen silver; venter black except for silver spot between epigastric groove and dark ring around spinnerets. Carapace with eye region projecting (Fig. 36). Anterior median eyes larger than other eyes, one-third their diameter apart, almost touching laterals. Posterior eyes less than their diameter apart. Abdomen with five dorsal thorns (Figs. 36, 37). First leg with spines on ventral tibia and one on distal end of metatarsus. Sclerites of palpus weakly sclerotized. Total length 2.1 mm. Carapace 0.9 mm long, 0.9 mm wide. First femur, 1.1 mm; patella and tibia, 0.9 mm; metatarsus, 0.5 mm; tarsus, 0.4 mm. Second patella and tibia, 0.7 mm; third, 0.5 mm; fourth, 1.0 mm.

*Diagnosis.* This is the only American species of *Phoroncidia* having five dorsal spines (Figs. 36, 37). This specimen was in the vial with two female *P. biocellata*, but is believed to be a separate species.

PHORONCIDIA SCUTELLATA (Taezanowski), n. comb.

Figures 42-45

*Tricantha scutellata* Taezanowski, (1879) 1880, Horae Soc. Ent. Rossicae, 15: 122, pl. 1, fig. 35. Female holotype from Amable María, [prov. Tarma, Junín], Peru, in the Polish Academy of Sciences, Warsaw, examined.

*Description.* Carapace yellow-brown, head region lighter, sternum, legs yellow-brown. Abdomen with white pigment on dorsum; tip of posterior spine orange and sclerotized discs brown. Sides of venter with white pigment, most of venter bare of pigment, sclerotized areas brown. Eyes subequal in size. Anterior median eyes one diameter apart, one and one-half diameters from laterals. Posterior median eyes a little more than their diameter apart, almost two diameters from laterals. Sternum slightly punctate. Abdomen relatively small, shield-shaped with a median dorsal posterior spine (Figs. 44, 45). Total length 2.5 mm. Carapace 1.0 mm long, 1.1 mm wide. First patella and tibia, 0.8 mm; second, 0.6 mm; third, 0.6 mm. Fourth femur, 0.9 mm; patella and tibia, 1.0 mm; metatarsus, 0.5 mm; tarsus, 0.4 mm.

PHORONCIDIA CRIBRATA (Simon), n. comb.

Figures 52-56

*Trithena cribrata* Simon, 1893, Ann. Soc. ent. France, 62: 323, pl. 7, fig. 5, ♀. Female holotype from Paraguay in the Muséum National d'Histoire Naturelle, Paris, examined.

*Description.* Carapace brown, darker on sides; sternum yellow-brown. Legs yellow-brown, fourth darkest. Abdomen white except for an unpigmented area on each side of pedicel (Fig. 55), three orange to dark brown spines, large dark brown and smaller brown sclerotized spots, and dark brown epigynum and spinneret area. Eyes subequal in size. Anterior median eye one diameter apart, one and one-third diameters from laterals. Posterior median eyes one diameter apart, two diameters from laterals. Abdomen with three spines but more spherical in shape than related species, and with many small sclerotized spots.

(Figs. 54-56). Total length 4.9 mm. Carapace 1.3 mm long, 1.1 mm wide. First patella and tibia, 0.9 mm; second, 0.7 mm; third, 0.7 mm. Fourth femur, 1.1 mm; patella and tibia, 1.2 mm; metatarsus, 0.4 mm; tarsus, 0.4 mm.

*Diagnosis.* The epigynum has two separate openings in a common, central, heavily sclerotized depression (Fig. 53). The spines are shorter than those of related species.

PHORONCIDIA TRICUSPIDATA (Blackwall), n. comb.

Figures 46-51

*Plectana tricuspida* Blackwall, 1863, Ann. Mag. Nat. Hist., (3) 11: 38.

Female holotype from Rio de Janeiro, Brazil, in the Hope Department of Entomology, Oxford University, examined.

*Tricantha tricornis* Simon, 1864, Histoire Naturelle des Araignées, 1 edit., p. 293, fig. 136, ♀; *nomen nudum*. From Brazil.

*Tricantha inuncans* Simon, 1867, Rev. Mag. Zool., (2) 19: 23. Female holotype from Nova Friburgo, [Est. Rio de Janeiro], Brazil, in the Muséum National d'Histoire Naturelle, Paris, examined. This specimen has an insect pinhole through the epigynum.

*Description.* Female holotype of *P. tricuspida*: carapace, sternum, legs yellow-brown. Dorsum of abdomen white, three spines orange. Both the type of *T. inuncans* and the specimen from Teresópolis without dorsal pigment. Venter of abdomen without pigment except for white on each side of pedicel and ringing spinnerets up to genital groove; an unpigmented streak up each spine. Eyes subequal in size, posterior median eyes slightly smaller than others. Anterior median eyes less than a diameter apart, one diameter from laterals. Posterior median eyes one diameter apart, two diameters from laterals. Chelicerae with two anterior teeth. Abdomen with three spines, dorsum with large round sclerotized plates of variable size (Figs. 50, 51), and some few small sclerotized spots. Epigynum with slits, very difficult to discern in most specimens (Fig. 47). Total length 5.5 mm. Carapace 1.4 mm long, 1.4 mm wide. First patella and tibia, 1.1 mm; second, 0.8 mm; third, 0.7 mm. Fourth femur, 1.2 mm; patella and tibia, 1.4 mm; metatarsus, 0.6 mm; tarsus, 0.5 mm.

The holotype of *T. inuncans* has larger paired dorsal discs (Fig. 51) than the holotype of *P. tricuspida* (Fig. 50).

*Records.* Brazil. Est. Rio de Janeiro: Teresópolis, ♀ (MNHN); March 1946, ♀ (H. Sick, AMNH).



## PHORONCIDIA FLAVOLIMBATA (Simon), n. comb.

Figures 57-61

*Tricantha flavolimbata* Simon, 1893, Ann. Soc. ent. France, 62: 322, pl. 7, fig. 3. Female holotype from Loja, Ecuador, in the Muséum National d'Histoire Naturelle, Paris, examined.

*Description.* Carapace yellow-brown, black in immediate area around anterior median eyes and between lateral eyes. Sternum dark brown; legs yellow. Abdomen white except for golden yellow spines, dark brown sclerotized spots, and minute scattered orange spots on dorsum. Epigynum dark brown and area around spinnerets also dark brown. Eyes subequal in size. Anterior median eyes one diameter apart, one and one-third diameters from laterals. Posterior eyes one and one-half diameters apart. Abdomen widest anteriorly with three spines, and having sclerotized spots on dorsum and venter (Figs. 59-61). Total length 5.9 mm. Carapace 1.2 mm long, 1.3 mm wide. First patella and tibia, 1.1 mm; second, 0.8 mm; third, 0.8 mm. Fourth femur, 1.3 mm; patella and tibia, 1.3 mm; metatarsus, 0.7 mm; tarsus, 0.5 mm.

*Diagnosis.* The epigynum has the openings near the posterior border, at the lateral ends of a transverse groove (Fig. 58).

## PHORONCIDIA BIOCELLATA (Simon), n. comb.

Figures 67-71

*Tricantha biocellata* Simon, 1893, Ann. Soc. ent. France, 62: 323, pl. 7, fig. 4. Female lectotype here designated from Caraga, Minas Gerais, Brazil, in the Muséum National d'Histoire Naturelle, Paris, examined.

*Description.* Carapace, sternum, legs yellow-brown. Abdomen with less white pigment than in some related species (Fig. 71), spines orange to black. The paratype has more white pigment than the lectotype. The epigynum and the ring around spinnerets dark brown. Eyes subequal in size. Anterior median eyes slightly less than one diameter apart, slightly less than two diameters from laterals. Posterior median eyes one and one-quarter diameters apart. Two diameters from laterals. The paratype, although mature, is much smaller than the lectotype, being only 3.7 mm total length. Total length of lectotype 4.8 mm. Carapace 1.2 mm long, 1.1 mm wide. First patella and tibia, 1.0 mm; second, 0.6 mm; third, 0.6 mm. Fourth femur, 1.0 mm; patella and tibia, 1.2 mm; metatarsus, 0.6 mm; tarsus, 0.4 mm.

*Diagnosis.* Abdomen less sclerotized than in related species, having only large sclerotized discs but no small spots on dorsum (Figs. 69, 71). Epigynum openings are indistinct slits (Fig. 68); connecting ducts (Fig. 67) transparent.

*Record.* *Brazil. Minas Gerais:* Diamantina, 1902, 2 ♀ (E. Gonnelle, MNHN); Caraga, ♀ paratype (E. Gonnelle, MNHN).

PHORONCIDIA TRIUNFO sp. n.

Figures 62-65

*Tricantha tricornis*,—F. P.-Cambridge, 1904, *Biologia Centrali-Americana, Araneidea*, 2: 540, pl. 51, fig. 26, ♀. Not *Tricantha tricornis* Simon.

*Type.* A damaged female holotype from El Triunfo, Chiapas, Mexico, 2000 m alt., April 1942 (H. Wagner), in the American Museum of Natural History. The specific name is a noun in apposition after the type locality.

*Description.* Carapace brown. Sternum lighter brown. Legs brown. Dorsum of abdomen white, sclerotized spots brown, three spines orange. Venter whitish with brown epigynum and ring around spinnerets. Eyes subequal in size; anterior median eyes one diameter apart, one and one-half diameters from laterals. Posterior median eyes one diameter apart, two diameters from laterals. Abdomen (Figs. 64, 65) with three spines, paired dorsal sclerotized discs and small sclerotized spots. Total length 4.6 mm. Carapace 1.3 mm long, 1.3 mm wide. First patella and tibia, 1.2 mm; second, 0.8 mm; third, 0.8 mm. Fourth femur, 1.3 mm; patella and tibia, 1.4 mm; metatarsus, 0.8 mm; tarsus, 0.5 mm.

*Diagnosis.* Epigynum, with two separate openings in a flat area anterior to a keel (Fig. 63), distinguishes this species from *P. tricuspidata* and *P. cribrata*.

*Records.* *Mexico. Colima:* Nevada de Colima, 21 Jan. 1943, juv. (F. Bonet, AMNH). *Chiapas:* El Triunfo, 2000 m, April 1942, fragments of 2 ♀ paratypes (H. Wagner, AMNH). *Guatemala.* Motaña de Chilasco (F. P.-Cambridge, 1902). *Costa Rica.* Tablazo, juv. (Tristan).

PHORONCIDIA SABOYA sp. n.

Figures 72-76

*Type.* Female holotype from "Cabin La Luzera," Saboyá, Boyacá, Colombia, in the British Museum. The specific name is a noun in apposition after the type locality.

*Description.* The type is in poor physical condition, having originally been pinned and dried. Carapace, sternum, legs yellow-brown. Abdomen with spines orange-white; sides and anterior of dorsum white and middle with scattered white pigment; sclerotized plates and smaller spots light brown. Venter with some scattered white pigment spots, sides white. Anterior median eyes very slightly larger than others, one and one-quarter diameters apart, two diameters from laterals. Posterior median eyes one and three-quarters diameters apart, two diameters from laterals. Abdomen (Figs. 74-76) with three large spines and dorsum with paired round plates and scattered smaller sclerotized spots. Spines less sclerotized than in related species. Total length 5.5 mm. Carapace 1.5 mm long, 1.8 mm wide. First patella and tibia, 1.4 mm; second, 1.2 mm; third, 1.1 mm. Fourth femur, 1.7 mm; patella and tibia, 1.4 mm; metatarsus, 0.9 mm; tarsus, 0.6 mm.

*Diagnosis.* The base of the abdominal spines is wider (Figs. 74-76) than in related species. The epigynum differs from *P. triunfo* and others by having two indistinct dark spots containing the openings, and between and anterior to the spots a deep V-shaped groove (Fig. 73).

PHORONCIDIA REIMOSERI sp. n.

Figures 77-81

*Type.* Female holotype from Est. Rio Grande do Sul, 1908, Brazil (E. Reimoser), in the Museum of Comparative Zoology. The species is named after its collector, the arachnologist E. Reimoser.

*Description.* Carapace, sternum shiny dark brown. Legs lighter brown, distal portion of fourth femora, and fourth patellae darker. Abdomen with spines shiny black, dorsum yellow-white in alcohol; venter white proximal to spines; sides and posterior black; a dark brown ring around spinnerets and white between. Anterior median eyes slightly larger than others; two-thirds diameter apart, two diameters from laterals. Posterior median eyes one and one-half diameters apart, two diameters from laterals. Abdomen with three spines (Figs. 79-81), sclerotized discs, and variable number of tiny sclerotized spots. Total length of females 3.3-5.0 mm. Total length of one female 4.6 mm. Carapace 1.3 mm long, 1.3 mm wide. First patella and tibia, 1.0 mm; second, 0.8 mm; third, 0.7 mm. Fourth femur,

1.1 mm; patella and tibia, 1.3 mm; metatarsus, 0.6 mm; tarsus, 0.5 mm.

Drawings were made from a recently collected specimen from Nova Teutonia.

*Diagnosis.* The single median opening in the epigynum (Fig. 78) distinguishes the species from *P. tricuspidata*.

*Records.* *Brazil. Est. São Paulo:* Fazenda Novo-Niagara, lat 23° 00' S, long 49° 20' W, 1898, ♀ (E. Gounelle, MNHN). *Santa Catarina:* Nova Teutonia, lat 27° 11' S, long 52° 23' W, ♀ (F. Plaumann, SMF).

#### PHORONCIDIA GIRA sp. n.

Figures 82-86

*Type.* Female holotype from Tovar, Aragua, Venezuela, 1888 (E. Simon) in the Muséum National d'Histoire Naturelle, Paris (no. 10025). The specific name is an arbitrary combination of letters.

*Description.* Carapace, sternum brown, legs lighter brown. Abdomen with three orange-colored spines, dorsum white except for dark brown sclerotized discs and spots; venter white on sides, but area between epigynum and spinnerets on sides of pedicel without pigment. Eyes subequal in size. Anterior median eyes one diameter apart, one and one-half diameters from laterals. Posterior median eyes one and one-quarter diameters apart, two diameters from laterals. Abdomen with three spines, large, dark discs and smaller sclerotized spots on dorsum and venter. Total length 5.7 mm. Carapace 1.3 mm long, 1.4 mm wide. First patella and tibia, 1.0 mm; second, 0.5 mm; third, 0.5 mm. Fourth femur, 1.3 mm; patella and tibia, 1.3 mm; metatarsus, 0.6 mm; tarsus, 0.5 mm.

*Diagnosis.* The epigynum has a posterior median dark depression with an indistinct dark spot in each side of it (Fig. 83). The region posterior to the depression is heavily sclerotized. The connecting ducts are hardly visible in the cleared female genitalia (Fig. 82). The structure on the epigynum and the relatively long abdominal spines separate the species from *P. triunfo* and *P. tricuspidata*.

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(Received May 13, 1963.)

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